

## REMARKS

Claims 1-30 are pending. Claims 15-29 have been withdrawn from consideration by the filing of the Response to Restriction Requirement on July 21, 2006. The Examiner has rejected claims 1-3, 7-14, and 30, and has rejected claims 4-6. Applicant hereby amends claims 1, 4, 7, 12, and 30.<sup>1</sup> Claim 12 has been amended to correct a grammatical error. Claim 7 has been amended to replace “softkey” with “key” to clarify the invention.

### Claim Rejections under 35 U.S.C. § 102(b)

The Examiner rejected claim 30 under 35 U.S.C. 102(b) as allegedly anticipated by U.S. Patent No. 5,574,376 (“Topp et al.”). By this amendment, Applicant has amended claim 30 to further include “means for coupling an audio frequency generator to a cable to provide a magnetic field at an audio frequency.”

Applicant respectfully submits that Topp et al. fails to teach or suggest at least “means for coupling an audio frequency generator to a cable to provide a magnetic field at an audio frequency,” as recited in claim 30, as amended. The invention of Topp et al. detects and estimates the size of surface defects in a conductor by inducing an AC field and sensing any unexpected disturbance in the field. *See* Topp et al., Abstract. However, Topp et al. does not teach or suggest coupling any device to the conductor or utilizing an audio frequency generator for any purpose. In fact, Topp et al. teaches away from solutions that would require “access to the bright metal” of the conductor, as would be required to couple an audio frequency generator to the conductor. *See* Topp et al., col. 1, lines 8–36.

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<sup>1</sup> The Examiner has made a number of statements that characterize the prior art or characterize the claims. Applicant does not necessarily agree or acquiesce in any of these characterizations, even if those characterizations are not specifically addressed in this paper.

At least because Topp et al. fails to teach or suggest “means for coupling an audio frequency generator to a cable to provide a magnetic field at an audio frequency,” as recited in claim 30, as amended, Applicant respectfully submits that claim 30 is allowable and requests that the Examiner withdraw the rejection of claim 30 under § 102(b).

### **Claim Rejections under 35 U.S.C. § 103(a)**

The Examiner has rejected claims 1, 3, 7, and 9-14 under 35 U.S.C. 103(a) as allegedly unpatentable over U.S. Patent No. 5,714,885 (“Lulham”) in view of Topp et al. Applicant respectfully traverses the Examiner’s rejections for at least the following reasons.

The Examiner admits that Lulham does not teach “generating test values corresponding to the orthogonal components of the magnetic field along the cable route” and “entering the test values” to “a test memory,” as recited in claim 1; “detecting a first component of the magnetic field with a first antenna coil” and “detecting a second component of the magnetic field with a second antenna coil oriented orthogonally to the first antenna coil,” as recited in claim 3; and “entering an input to a softkey at various points on the cable route to signify a test point,” and “storing the test values in a memory when the softkey is activated,” as recited in claim 7. *See* Office Action, page 4. The Examiner attempts to cure these defects by citing Topp et al. Applicant disagrees at least on the grounds that there is no motivation to combine references Lulham and Topp et al.

M.P.E.P. § 2142 states that “[t]he examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness.” To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second,

there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). M.P.E.P. § 2142, 8th Ed., Rev. 4 (October 2005), p. 2100–134.

Here, the requirement for establishing a *prima facie* case of obviousness has not been met for at least the reason that there is no motivation to combine Lulham and Topp et al. Topp et al. describes an invention that is fundamentally different from either the present invention or that of Lulham. Topp et al. describes a system for detecting and estimating the size of a defect in the **surface** of a conductor by inducing an AC field near the surface of the conductor and measuring any disturbance in the expected field. *See* Topp et al., Abstract. Lulham describes an invention for detecting faults in buried conductors, especially signal-carrying cables, by transmitting a signal through the conductor and detecting electro-magnetic patches formed in the conductor's path or corridor. The invention of Topp et al. is meant for detecting surface defects such as cracks in metals (e.g. a ship's hull), with large surface areas. The invention of Topp et al. is not useful for detecting faults in buried conductors, as contemplated by Lulham. Moreover, Topp et al. does not transmit a signal directly through the conductor as taught by Lulham. In fact, Topp et al. teaches away from solutions that require direct access to the "bright metal," as is required to transmit a signal through the conductor as in the method taught by Lulham. *See* Topp, col. 1, lines 8–24.

For the reasons above, Applicant submits that Lulham and Topp et al. cannot be combined for purposes of an obviousness rejection. The invention of Topp et al. would be understood by one skilled in the art to be essentially an eddy current detector and not analogous

to the cable fault detection apparatus described in Lulham. The differences in structure, electronics, and purpose between the inventions of Lulham and Topp et al. are too great to expect one of ordinary skill in the art, even knowing of the teachings of Topp et al., to look to Topp et al. for features that relate to detecting faults in underground cables.

For at least the reasons above, Applicant respectfully requests that the Examiner withdraw the rejections under 35 U.S.C. § 103(a) of claims 1, 3, 7, and 9-14, which the Examiner rejected as allegedly unpatentable over Lulham in view of Topp et al.

For at least the same reasons, Applicant further requests that the Examiner withdraw the objections under 35 U.S.C. § 103(a) of Claims 2, which was rejected as allegedly unpatentable over Lulham in view of Topp et al., in further view of Davis, Jr., U.S. Patent No. 5,539,323 (“Davis, Jr.”).

For at least the same reasons, Applicant further requests that the Examiner withdraw the objections under 35 U.S.C. § 103(a) of Claims 8 which was rejected as allegedly unpatentable over Lulham in view of Topp et al., in further view of Bose et al., U.S. Patent Application Publication No. 20030010494 (“Bose et al.”).

#### **Allowable Subject Matter**

The Examiner has objected to claims 4-6 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. By this response, Applicant has amended claim 4 to be an independent claim incorporating all of the limitations of former base claim 1 and intervening claim 3. Applicant submits that claim 4, as amended, is therefore allowable. Claims 5 and 6, which depend from claim 4, are also allowable for at least the same reasons as claim 4.

### Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

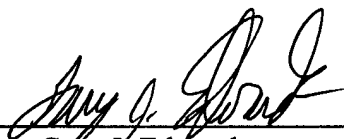
Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: January 16, 2007

By: \_\_\_\_\_



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